REMARKS

Claims Rejections - 35 USC § 112

Claims 1-12, 33, 34 and 94 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner rejected the claims because the specification does not literally recite the word "hydrated." Applicants respectfully traverse this rejection.

Applicants note hydrated merely means that a substance contains water. Please see the attached Wikipedia definition – "Hydrate is a term used in inorganic chemistry and organic chemistry to indicate that a substance contains water." As noted by the Examiner, paragraph [0041] of the specification describes the gels as having sponge like structure and up to 99.5% water. Applicants submit that this description supports "hydrated" in claims 1 and 33.

Claims Rejections - 35 USC § 103

Claims 1, 2, 5, 10, 33 and 94 were rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US 6,699,724) in view of Renn et al. (US 3,875,044). Claims 3, 4 and 7-9, 11, 12 and 34 were rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US 6,699,724) in view of Renn et al. (US 3,875,044), as applied to claim 1, further in view of Schultz et al. (US 6,180,415). Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US 6,699,724) in view of Renn et al. (US 3,875,044), as applied to claim 1, further in view of Mirkin et al. (US 2003/0211488). Applicants respectfully traverse these rejections.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Independent claims 1 and 33 have been amended to include the features of claim 7. Specifically, claims 1 and 33 have been amended to recite "wherein the nanoparticles are composite

organicinorganic nanoparticle (COINS) comprising a core and a surface, wherein the core comprises a metallic colloid comprising a first metal and a Raman-active organic\compound." West (the primary reference), in contrast, teaches a metal nanoshell particle that has a completely different structure and unique properties which cannot be generated with COINs. West teaches:

> Metal nanoshells are a new type of "nanoparticle" composed of a non-conducting, semiconductor or dielectric core coated with an ultrathin metallic layer. As more fully described in co-pending U.S. patent application Ser. No. 09/038,377, metal nanoshells manifest physical properties that are truly unique. For example, it has been discovered that metal nanoshells possess attractive optical properties similar to metal colloids, i.e., a strong optical absorption and an extremely large and fast third-order nonlinear optical (NLO) polarizability associated with their plasmon resonance. At resonance, dilute solutions of conventional gold colloid possess some of the strongest electronic NLO susceptibilities of any known substance. (Hache, F. et al. App. Phys. 47:347-357 (1988)) However, **unlike simple metal colloids**, the plasmon resonance frequency of metal nanoshells depends on the relative size of the nanoparticle core and the thickness of the metallic shell (Neeves, A. E. et al. J. Opt. Soc. Am. B6:787 (1989); and Kreibig, U. et al. Optical Properties of Metal Clusters, Springer, N.Y. (1995)). **The relative thickness or depth of each particle's constituent layers determines the wavelength of its absorption. Hence, by adjusting the relative core and shell thicknesses, and choice of materials, metal nanoshells can be fabricated that will absorb or scatter light at any wavelength across much of the ultraviolet, visible and infrared range of the electromagnetic spectrum.** Whether the particle functions as an absorber or a scatterer of incident radiation depends on the ratio of the particle diameter to the wavelength of the incident light. What is highly desirable in the biomedical field are better, more sensitive devices and methods for performing in vivo sensing of chemical or biological analytes. Also desired are easier, more rapid and more sensitive methods and reagents for conducting in vitro assays for analytes such as autoantibodies, antiviral or antibacterial antibodies, serum protein antigens, cytokines, hormones, drugs, and the like. (West, col.2 l.66 to col.3 l.34)(Emphasis added)

One of ordinary skill reading West would not substitute the nanoshells of West with the claimed COINS as West uses the nanoshells to have particles with specific wavelengths of absorption. Indeed, West specifically teaches away from using COINs because of the need in the "biomedical field [for] better, more sensitive devices and methods for performing in vivo sensing of chemical or biological analytes" than achievable with COINs. (Id. at col.3 l.27-30). Thus, one of ordinary skill would not have substituted the COINS of Schultz for the nanoshells of West.

Additionally, claims 1 and 33 recite, *inter alia*, "nanoparticles stationary within the gel." Schultz, as discussed in the response filed July 24, 2006 (pages 4-5), discloses in column 6, line 65 to column 7, line 1, "In one embodiment, the target is a polynucleotide present as a separated band in an electrophoresis gel, and the contacting is carried out by exposing the surface of the gel to PREs under hydribization conditions. Also, Schultz discloses the following in column 30, lines 48-66:

> PRP conjugates and free PRPs can be separated by conventional biochemical methods including column chromatography, centrifugation, electrophoresis and filtration. Because PRPs with surface localized molecules or entities can have a significantly different mobility than do free PRPs of the same size, they elute from gel filtration columns at a different rate than do free PRPs. Because PRPs are charged particles, they migrate in an electric field. Thus, PRPs can be manipulated by and even observed during electrophoresis.
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> PRPs having certain desired characteristics can also be separated based on their Zeta potentials. Zeta potential separation equipment suitable for this use is commercially available (Coulter Corp, Florida). Radiation pressure may also be used to force PRPs through a matrix at different rates depending on their structural properties. If bound and free PRPs are subjected to electrophoresis in, for example, an agarose or acrylamide gel, the free PRPs migrate faster than do the bound PRPs. Likewise, PRP conjugates may be preferentially retained by filters. Purification can alternatively be performed by centrifugation. Thus, with these methods, an original population of PRPs having a wide range of spectral characteristics can be separated into subpopulations which have a narrower range of spectral characteristics.

In short, in column 6, line 65 to column 7, line 1, Schultz discloses separation of target molecules by electrophoresis and then contacting the separated band of the target molecules to PRE's under hybridization conditions. Column 30, lines 48-66 of Schultz relates to separation of PRPs conjugated with target molecules from free PRP's and teaches that this separation can be done with electrophoresis. Schultz teaches that "PRPs with surface localized molecules or entities can have a significantly different *mobility* than do free PRPs of the same size," thereby clearly

indicating that the PRP's of Schultz are mobile, *not* stationary (as recited in claims 1 and 33) with the electrophoresis gel of Schultz.

Applicant's respectfully submit that the Examiner should not read out the limitation "stationary" in claims 1 and 33 as the Federal Circuit in *Lewmar Marine* explained that even the word "only" cannot be read out of a claim. *Lewmar Marine Inc. v Barient Inc.*, 827 F.2d 744, cert denied, 484 U.S. 1007 (Fed. Cir. 1988)("The claim limitation could possibly read on the American Eagle winch if the word 'only' did not appear in that clause. The word 'only,' however, is there and may not be read out of the claims."). Similarly, in this case, the word "stationary" may *not* be read out of the claims.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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